

CLAIMS

1. A plasma display device including a plasma display panel in which a plurality of discharge cells are arranged, and a phosphor layer in color corresponding to each discharge cell is disposed, and the phosphor layer emits light by being excited by ultraviolet light, wherein the phosphor layer has a green phosphor layer including $Zn_2SiO_4:Mn$; and the green phosphor made of $Zn_2SiO_4:Mn$ has an element ratio of zinc (Zn) to silicon (Si) of 2/1, which is a stoichiometric ratio at a proximity of a surface thereof.
2. A plasma display device including a plasma display panel in which a plurality of discharge cells are arranged, a phosphor layer in a color corresponding to each discharge cell is disposed, and the phosphor layer emits light by being excited by ultraviolet light, wherein the phosphor layer has a green phosphor layer including $Zn_2SiO_4:Mn$; and the green phosphor made of $Zn_2SiO_4:Mn$ has an element ratio of zinc (Zn) to silicon (Si) equal to a stoichiometric ratio at a proximity of a surface thereof, and is positively charged or zero-charged.
3. A method of producing a phosphor for a plasma display device, comprising:
 - a process in which one of metal salt, nitrate salt, and organometallic salt, including elements [Zn, Si, Mn] composing a green phosphor, are blended so that an element ratio of Zn to Si is to be 2/1, and then the salt and water are mixed to produce mixed liquid;
 - a pre-firing process in which, after the mixed liquid is dried, the

mixed liquid is fired in an air at 600°C to 900°C, to produce pre-fired matter; and

a firing process in which the pre-fired matter is fired in an atmosphere including at least one of N₂, N₂·O₂, and Ar·O₂, between 5 0.105 MPa and 150MPa inclusive, at 1,000°C to 1,350°C.

4. A method of producing a phosphor for a plasma display device, comprising:

a process of mixing a raw material for a phosphor, in which a 10 raw material of oxide and/or carbonate including elements [Zn, Si, Mn] composing a green phosphor, are mixed;

a pre-firing process in which the mixed raw material is fired in an air at 600°C to 900°C, to produce pre-fired matter; and

a firing process in which the pre-fired matter is fired in an 15 atmosphere including at least one of N₂, N₂·O₂, and Ar·O₂, between 0.105 MPa and 150MPa inclusive, at 1,000°C to 1,350°C.